

# Curriculum Vitae

Name : Emre Mengi  
Date of Birth : February 27, 1978  
Place of Birth : Ankara, Turkey  
Nationality : Turkish  
Address : Koç University  
Department of Mathematics  
Rumelifeneri Yolu 34450  
Sarıyer, Istanbul / Turkey  
Phone : +90 (212) 3381658 (Office)  
E-mail : emengi@ku.edu.tr  
Homepage : <http://home.ku.edu.tr/~emengi>

## Current and Past Positions

2015-present Associate Professor  
Department of Mathematics  
Koç University

2009-2015 Assistant Professor  
Department of Mathematics  
Koç University

2006-2009 S.E.W. Assistant Professor  
Department of Mathematics  
University of California, San Diego

2001-2006 Graduate Research and Teaching Assistant  
Courant Institute of Mathematical Sciences  
New York University

## Education

- Ph.D. Courant Institute of Mathematical Sciences  
New York University, September 2006  
Thesis Title: Measures for Robust Stability and Controllability  
Ph.D. Supervisor: Michael L. Overton
- B.S. Department of Computer Engineering  
Middle East Technical University, Turkey, June 2000  
*with a high honor degree*

## Awards and Honors

- 2014 BAGEP award  
Turkish Academy of Science
- 2008 Householder Award XIII - Honorable Mention  
Householder Symposium
- 2007 Leslie Fox Second Prize  
Institute of Mathematics and its Applications (IMA)
- 2007 Janet Fabri Prize - Honorable Mention  
Courant Institute of Mathematical Sciences, New York University
- 2004 Young Researcher Award  
First International Conference on Continuous Optimization
- 2001-2006 The Henry M. MacCracken Fellowship from the Graduate  
School of Arts and Science of New York University

## Research Projects

- June 2013-June 2015      TUBITAK - FWO (joint Turkish - Belgian project with Karl Meerbergen from KU-Leuven)  
Title : Support function based algorithms for large-scale and nonlinear eigenvalue optimization  
Project No : 113T053  
Role in the Project : Principal Investigator
- Sep 2010-Sep 2014      Marie Curie - FP7  
International Reintegration Grants (IRG)  
Title : Lipschitz-based optimization of singular values with applications to dynamical systems  
Project No : PIRG07-GA-2010-268355  
Role in the Project : Principal Investigator
- May 2010-April 2012      TUBITAK  
(The Scientific and Technological Research Council of Turkey)  
Title : Optimization of symmetric eigenvalues and its applications to dynamical systems  
Project No : 109T660 (Career Grant)  
Role in the Project : Principal Investigator
- 2004-2007      NSF (National Science Foundation)  
Title : Optimization of Pseudospectra  
Project No : DMS-0412049  
Role in the Project : Researcher

## Papers and Manuscripts

All of the papers and manuscripts below can be reached from the following website:

<http://home.ku.edu.tr/~emengi/papers.html>.

- E. Mengi and M.L. Overton, Algorithms for the computation of the pseudospectral radius and the numerical radius of a matrix, *IMA J. Num. Anal.*, 25(4):648-669, 2005.

- M. Gu, E. Mengi, M.L. Overton, J. Xia and J. Zhu, Fast methods for estimating the distance to uncontrollability, *SIAM J. Matrix Anal. Appl.*, 28(2):477-502, 2006.
- D. Kressner and E. Mengi, Structure preserving eigenvalue solvers for robust stability and controllability estimates, in proceedings of *the 45th IEEE conference on control and decision* 5174-5179, 2006.
- E. Mengi, On the estimation of the distance to uncontrollability for higher order systems, *SIAM J. Matrix Anal. Appl.*, 30(1):154-172, 2008.
- E. Mengi, Locating a nearest matrix with an eigenvalue of prespecified algebraic multiplicity, *Numer. Math.*, 118(1):109-135, 2011.
- E. Mengi, Nearest linear systems with highly deficient reachable subspaces, *SIAM J. Matrix Anal. Appl.*, 33(3):1000-1017, 2012.
- D. Kressner, E. Mengi, I. Nakic and N. Truhar, Generalized eigenvalue problems with specified eigenvalues, *IMA J. Num. Anal.*, 34(2):480-501, 2014.
- E. Mengi, E.A. Yildirim and M. Kilic. Numerical optimization of eigenvalues of Hermitian matrix functions, *SIAM J. Matrix Anal. Appl.*, 35(2):699-724, 2014.
- M. Karow, D. Kressner and E. Mengi. Nonlinear eigenvalue problems with specified eigenvalues, *SIAM J. Matrix Anal. Appl.*, 35(3):819-834, 2014
- M. Karow and E. Mengi. Matrix polynomials with specified eigenvalues, *Linear Algebra Appl.*, 466:457-482, 2015.
- E. Mengi. A support function based algorithm for optimization with eigenvalue constraints, *SIAM J. Optim.*, accepted subject to minor revision.
- K. Meerbergen, E. Mengi, W. Michiels and R. Van Beeumen. Computation of pseudospectral abscissa for large scale nonlinear eigenvalue problems, *IMA J. Num. Anal.*, submitted.

- F. Kangal, K. Meerbergen, E. Mengi and W. Michiels. A subspace method for large scale eigenvalue optimization, *Math arXiv:1508.04214*.

## Conference Organization

- PIMS Workshop on Numerical Linear Algebra and Optimization, August 2013, Vancouver, British Columbia, Canada (Partly supported by PIMS and NSF).

## Invited Talks

- EPSRC Matrix and Operator Pencil Network (MOPNET) 6  
Bath, UK, April 2012
- Workshop on Accurate Solution of Eigenvalue Problems (IWASEP) 9  
Napa, CA, USA, June 2012
- Numerical Linear Algebra and Applications  
Guwahati, Assam, India, January 2013.

## Refereeing Duties

I have been serving as a referee in the following journals or conference proceedings: AMS Mathematics of Computation, SIAM Journal on Matrix Analysis and Applications, Numerische Mathematik, SIAM Journal on Scientific Computing, Linear Algebra and Applications, ESAIM: Control, Optimisation and Calculus of Variations, ZAMM - Journal of Applied Mathematics and Mechanics, Journal of Optimization Theory and Applications, IEEE Transactions on Automatic Control, System and Control Letters, Numerical Algorithms, Electronic Transactions on Numerical Analysis, Proceedings of the IEEE Conference on Control and Decision, Operators and Matrices, Electronic Journal of Linear Algebra, Turkish Journal of Mathematics, Turkish Journal of Electrical Engineering and Computer Sciences, Mathematics and Computers in Simulation, International Journal of Dynamics and Control.

## Teaching Experience

I have taught at UC San Diego between 2006-2009, and have been teaching at Koç University since 2009 on the following topics:

- Undergraduate courses on linear algebra, differential equations, numerical linear algebra, numerical optimization, numerical analysis as well as various calculus courses;
- Graduate courses on numerical linear algebra, numerical differential equations and optimization.